

AD-A151 046 HELICOPTER MOBILE CREWMAN SUMMER SURVIVAL SYSTEM(U)  
NAVAL AIR DEVELOPMENT CENTER WARMINSTER PA AIRCRAFT AND  
CREW SYSTEMS TECHNOLOGY DIRECTORATE G P GILLESPIE  
UNCLASSIFIED AUG 83 NADC-83099-60 F/G 6/7

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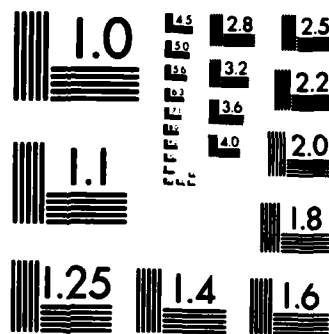
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## HELICOPTER MOBILE CREWMAN SUMMER SURVIVAL SYSTEM

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The system described in this report is designed to provide the Mobile Crewman with the necessary survival capabilities to cover a wide range of emergencies when escaping from a downed helicopter. It is designed to provide flotation and lift capability and the use of survival items.		

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## INTRODUCTION

The Naval Air Development Center has developed three mission specific survival systems for Naval helicopter aircrewmembers. These systems are categorized for use as: the Stationary Aircrewman, the Mobile Aircrewman, and the Passenger. The systems are designed to meet the diverse requirements of the aircrew, be fully compatible with in-flight duties and provide the equipment necessary to aid in survival and detection.

Helicopter Mobile Crewman work at various tasks such as: moving helicopters and cargo; working as Mine Countermeasure and VERTREP crewmen; directing hoisting operations, sometimes in a prone position; and other laborious and physically demanding assignments. Mobile Crewmen duties require freedom of movement while wearing survival equipment, thus, the survival system must be comfortable enough to be worn constantly by the crewmen on all missions on land or water, and should provide flotation capability, lift capability and use of sundry survival items. In addition, the system and its subsystems must be compatible with current aircrew equipment.

## PURPOSE

The purpose of this report is to document the development, to date, of this Helicopter Mobile Crewman Summer Survival System. Due to this system's unfunded status, development has been curtailed. Upon resumption of funding, this report will be utilized to assist those involved in future development of this system.

## SYSTEM DESCRIPTION

The requirement for this system to be worn by Mobile Crewmen during the performance of their duties dictates that the system be fully compatible with their duties and perform satisfactorily in a survival situation. The system was designed for freedom of movement, good heat dissipation for warm weather wear, and the relocation of survival equipment away from the subject's frontal area. In addition, the system is to be used with the Back Pack Mini-Raft which is designed to be worn over this system, fastened around the waist with the back pack in the small of the subject's back.

The Helicopter Mobile Crewman Summer Survival System is shown in Figure 1 and is described as follows:

- The dual cell, yolk type, heat sealed life preserver is enclosed in a filament Nomex casing by means of hook and pile closures located on the outside periphery of the container. Each cell is inflated by two 16 gram independent CO<sub>2</sub> bottles which are activated when the beaded handles are pulled. Inflation forces open the hook and pile closures of the container.
- The chest belt is buckled at the center chest area, under the life preserver container. The front of container is attached to the chest belt by broad belt loops, and the container is tied to the bladder by laced grommets.

The pockets on the chest belt contain a snap link and a ring which are both attached to leaders, securely sewn to the belt. For hoisting purposes, the snap link is snapped to the ring, and again snapped to the hoisting ring.

The chaps are looped to the waist belt and contain the pockets for the survival items. They are worn to the outside of the thighs and are strapped above the knees.

#### SYSTEM CHARACTERISTICS

This system is designed to be worn when anti-exposure equipment is not required and to interface with, and be used with the Back Pack Mini-Raft. The location of survival equipment away from the subject's frontal area in holster or chaps type containers, is a unique characteristic.

The system's survival items consist of: 1 PRC-90 Radio; 2 MK-13 Mod 0 Day/Night Flares; 1 Dye Marker; 1 Small Signal Mirror; 1 Pen Gun Kit; 1 Whistle; 1 Strobe Light; 1 Steady Burn Light; 1 four ounce Water Bottle, and a Utility Knife.

The following system characteristics are listed with their Thresholds and Goals:

<u>Characteristic</u>	<u>Threshold</u>	<u>Goal</u>
Weight (without raft)	15 pounds	8 pounds
Adjustable for size	5th to 95th percentile	Same
System easily donned and doffed	Donned in 30 seconds doffed in 15 seconds	Donned in 10 seconds, doffed in 5 seconds
Inflation of Life Preserver to full design shape	30 seconds after activation of CO <sub>2</sub> cells	8 seconds
Buoyancy	The inflated life preserver shall support a 200 pound person in full gear	Same
Boarding of Mini-Raft	20 seconds	Same
Autrotation of unconscious survivor by Life Preserver	5 seconds	1 second
Removal of any Survival Item from holster	30 seconds	5 seconds



<u>Characteristic</u>	<u>Threshold</u>	<u>Goal</u>
Hoisting Capability	This system's hoisting apparatus shall be capable of supporting a 200 pound person in full gear while withstanding a 3G upward pull from a helicopter	Same
Body heat dissipation in helicopter ambient of 90° - 100°F	Heat dissipation judged adequate by wearers	Same
Compatible for use in these aircraft	UH-1, H-2, H-3, H-46, H-53, H-60	Same

This system was also designed to consider the aesthetic appeal of the wearer in addition to comfortably supporting and distributing the weight of the Life Preserver and the Survival Items.

#### CONCLUSIONS

The information documented in the report should be of significant assistance to those resuming this system's development, and to those involved in related systems' developments.

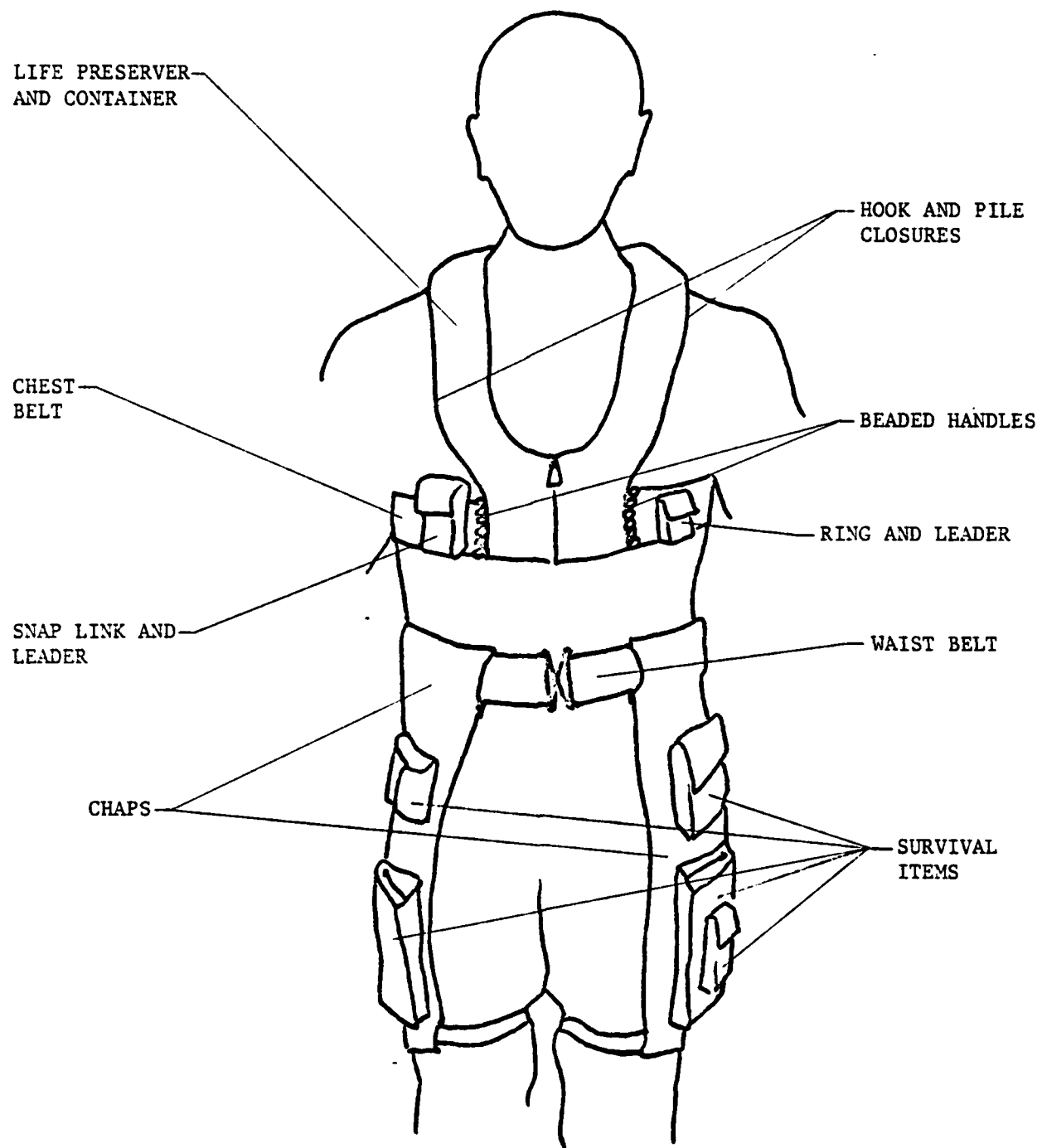


FIGURE 1. HELICOPTER MOBILE CREWMAN SUMMER SURVIVAL SYSTEM.

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